CLAIMS

We claim:

1. A method of calibrating a detector, comprising:
providing a calibration object having an indicium and an axis of rotation;
making an image of the indicium with a detector;
comparing the image with a predetermined image; and
adjusting the detector so that a subsequent image of the indicium more-closely matches the predetermined image.

2. The method of claim 1 wherein the calibration object mimics a golf ball.

3. The method of claim 1 wherein the detector is adjusted to minimize a rotational misalignment of the detector.

4. The method of claim 3 wherein the detector is a line scan camera and the indicium indicates whether a scan line of the camera is parallel to the axis of rotation.

5. The method of claim 1 wherein the detector is adjusted to minimize a horizontal misalignment of the detector.

6. The method of claim 5 wherein the detector is a line scan camera and the indicium indicates whether a scan line of the camera is in front of the axis of rotation.

7. The method of claim 1 wherein the detector is adjusted to minimize a vertical misalignment of the detector.

8. The method of claim 7 wherein the detector is a line scan camera and the indicium indicates whether a scan line of the camera is vertically aligned.

9. The method of claim 7 wherein the calibration object comprises latitudinal indicia that indicate whether the scan line is vertically aligned.

10. The method of claim 1 wherein the indicium indicates whether the detector is out of focus.

11. The method of claim 1 wherein the indicium comprises a longitudinal line.

12. The method of claim 1 wherein the calibration object has a surface, a portion of which is spherically shaped, football-shaped, hourglass-shaped, or conically shaped.

13. The method of claim 1 wherein the step of comparing the first indicium image with the predetermined image is performed using a display device.

14. The method of claim 1 wherein the detector is automatically adjusted using a shift mechanism.

15. The method of claim 14 wherein the calibration object has at least two indicia that have a known distance apart from each other, which indicate a scale factor that relates a detected distance to the known distance when detected by the detector.

16. The method of claim 15 wherein the at least two indicia are part of one indistinct marking.

17. The method of claim 17 wherein the at least two indicia are two lines of latitude that define planes perpendicular to the axis of rotation.

18. A method for calibrating a detector, comprising:

positioning a calibration sphere at a position on a golf ball production line occupied by a golf ball during golf ball inspection;

imaging the calibration object using a line scan camera detector to produce an image;

comparing the image with an predetermined image; and

adjusting the detector.

19. The method of claim 18 wherein the detector is adjusted to minimize horizontal misalignment of the detector.

20. The method of claim 18 wherein the detector is adjusted to minimize rotational misalignment of the detector.

21. The method of claim 18 wherein the detector is adjusted to minimize vertical misalignment of the detector.

22. The method of claim 18 wherein the detector is adjusted to focus the detector.

23. A calibration object, comprising:

an axis of rotation;

first indicium that designates the axis of rotation wherein the first indicium, when detected by a detector, indicates whether the detector is parallel to the axis of rotation;

second indicium that designates a plane that contains the axis of rotation wherein the second indicium, when detected by a detector, indicates whether the detector is in front of the axis of rotation; and

at least two indicia having a known distance apart from each other that, when detected by a detector, indicate a scale factor that relates a detected distance to the known distance.

24. The calibration object of claim 23 wherein the detector comprises a line scan camera.

25. The calibration object of claim 23 wherein the first indicium indicates whether a scan line of the line scan camera is parallel to the axis of rotation.

26. The calibration object of claim 23 wherein the first and second indicia are a longitudinal

line.

27. The calibration object of claim 23 wherein the object has a surface, a portion of which is spherically shaped, football-shaped, hourglass-shaped, or conically shaped.

28. The calibration object of claim 23 wherein the at least two indicia are distinct markings.

29. The calibration object of claim 23 wherein the at least two indicia are both part of one indistinct marking.

30. The calibration object of claim 23 wherein the at least two indicia are two lines of latitude that define planes perpendicular to the axis of rotation.

31. A method for calibrating an image of a calibration object rotatable by a device comprising the steps of:
rotating the calibration object with the device;
providing at least two indicia that make a first angle with each other;
obtaining a digital image of the calibration object;
determining a second angle between the corresponding indicia on the image;
determining an adjustment factor from the first and second angle;
applying said adjustment factor to images of other objects rotated by said device.

32. The method of claim 31 wherein the device is a stepper motor.

33. The method of claim 31 wherein the calibration object is a cylindrical shaped object.

34. The method of claim 31 wherein the at least two indicia comprises linear lines.